Axle loads and pavement performance indicators for typical highways in Eastern Province

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Abstract

In this study five primary highways carrying heavy truck traffic were selected as candidate sections for pavement evaluation with an ultimate objective to developing maintenance management system for the Eastern Province. A number of equipment recently acquired by the Research Institute, UPM, were employed to measure the important pavement performance indicators, such as the structural capacity measured by the Benkelman beam, the roughness measured by the Mays Ride Meter, and the skid resistance mesured by the Mini Texture Meter. In addition, the pavement condition survey was conducted by visual inspection using a set of simple hand tools for linear measurements. Axle load measurements, backed up by classified volume counts, were also made on each selected highway at appropriate locations. The results clearly demonstrate the usefulness of equipment based approach in identifying sections in need of maintenance. Heavy axle loads, far exceeding the M.O.C. limits, coupled with high volume of truck traffic, as represented by equivalent-number of 8.2-Tonne standard single axle load applications (EAL) are identified as a significant casual factor for premature pavement damage. Computer-aided data base has been developed for the selected sections to facilitate easy updating and retrieval of information. The monitoring should be continued annually to assist in the development of pavement deterioration curves for this region so that cost-effective maintenance strategies can be evolved well in time.